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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,144	03/11/2004	Hideyuki Kaneko	1188-0118P	7454

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EXAMINER	
MULLIS, JEFFREY C	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/797,144	KANEKO ET AL.	
	Examiner	Art Unit	
	Jeffrey C. Mullis	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims 2-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "polar" is subjective and therefore unclear. Furthermore it is ambiguous as to whether a polymer chain having even a clearly polar and clearly nonpolar segment should be viewed as the terms "polar" and "nonpolar" have opposite meanings.

Claims 2 and 5-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added limitation in the second to last line of claim 2 was not disclosed by the specification as filed and is therefore new matter.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 2 and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al. (US 2002/0183473).

Patentees in all embodiments require the polymerization of a macroinitiator with a macromonomer (note for instance the abstract). Note patent claim 11 where the macromonomer is a polyolefin and note also paragraph 230 where it is disclosed that "(T)wo approaches were taken for the preparation of a polypropylene based macroinitiator for the ATRP copolymerization of a polypropylene macromonomer with methyl methacrylate". Note paragraph 63 where the only macromonomeric polyolefins disclosed are those containing methacrylate polymerizable groups (i.e. those which would form polar methacrylate backbones as in applicants "P" superscript one) while the only macroinitiator disclosed have silicon heteroatoms or oxygen heteroatoms fron bromoisobutyrate terminal macroinitiators such as would result in silicon or oxygen atom containing "X" units. While patentees disclose "polyolefin" backbones in paragraph 20, only polypropylene is used to produce the species to produce thespecies at paragraphs 231-257 of the reference. However, to chose C4 alpha olefins from patentees genus would have been obvious to a practitioner

having an ordinary skill in the art at the time of the invention in the expectation of adequate results since all species are expected to work absent any showing of surprising or unexpected results.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito, (US 4,292,414) in view of either Wunsch (US 6,162,866) or Stephens (US 6,759,454).

Patentees disclose a silicon tetrachloride coupled styrene butadiene radial copolymer which is subsequently grafted such as encompasses at least those of applicants materials wherein "P" is a polyolefin chain, "X" is silicon and n=4. Note column 11, lines 40-50.

Stephens discloses the equivalence of silicon tetrachloride and applicants nonsilicon "X" groups as coupling agents for forming coupled styrenic block copolymers at the paragraph bridging columns 7 and 8 while Wunsch has a similar disclosure at column 5, lines 30-45.

The specific "X" moieties of claim 2-4 are not disclosed by Saito. However use of such would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results in view of the teaching of the secondary references of the equivalence of silicon tetrachloride and couplers containing applicants moieties absent any showing of surprising or unexpected results.

Claims 2-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Janssen et al. (EP 0856542, cited by applicants).

Patentees disclose a star shaped polymer having polyolefin arms coupled via an agent having ester and amine functionality having less than 200 atoms. See for instance the reaction shown at the top of pages 16 or 20.

Claims 2-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Kennedy et al. (US 2003/0236354).

Kennedy discloses a "star polymer" in which a polyisobutylene segment (encompassing applicants' "polyolefin chain") is "directly attached to a core component" (paragraph 33) wherein the core component includes calixarene species shown in paragraph 37 such as would give rise to applicants "X" containing an ether oxygen heteroatom.

Claims 2-11 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kennedy et al. (US20030204022).

Kennedy disclose a block copolymer using calixarene initiators such as would give rise to star polymers having applicants ether containing "X" moieties (paragraph 68 and 70) and requiring a polyisobutylene or other polyolefin rubber block (paragraph 72) and thus the limitations of the claims are met when applicants "n" is two or more. Applicants may argue that the limitations of the claims exclude some segments due to their limitation that not every P one is polar chain "A3" (the examiner would not agree since every macromolecular moiety attached to Kennedys' core requires a polyolefin segment and thus

encompassed by applicants "A1" and furthermore the claims do not actually exclude polar moieties present attached to their polyolefin segments). However Kennedy generally forms his polyolefin segments first and therefore the limitations of the claims are certainly met by the concept of the product using Kennedys' calixarene core at the point that it is used to polymerize olefin monomer as the first monomer but prior to contact with subsequent monomer. Alternatively even polymerization of the calixarene core containing star block rubber of Kennedy subsequently with the non polar monomer the use of which is taught by Kennedy encompasses the instant multi branched polymer and choice from such disclosures of Kennedy would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results, absent any showing of surprising or unexpected results.

Applicant's arguments filed 8-06 have been fully considered but they are not persuasive. Some references relied upon disclose multiple species some of which are elected and some which are not and in such cases the examiner has pointed out anticipated or obvious species and has also relied upon in references the examiner has become aware of whether or not elected. This has been done to accelerate prosecution. All claims are under consideration including those with structures such as III requiring a star structure.

With re to the term "polar" and "nonpolar" it is true that these terms are widely used in the chemical literature and appear in technical dictionaries but such is the case with many relative terms. While some materials are clearly polar (such as water) and some clearly nonpolar (such as hydrocarbon or hydrocarbon

moieties) other moieties are not clearly polar or non polar. For instance polyalkylmethacrylates would probably be considered polar in the case of polymethylmethcrylate but non polar for poly(decylmethacrylate) but for homologs in between such as poly(butyl methacrylate) there would be a question as to whether such a chain would be considered polar or non polar nor do the references cited shed light on this question. Applicants appear possibly to imply that compounds with an unequal sharing of electrons which do not have dipole moments canceling each other out are non polar (which is of course accurate). However even compounds which contain an unequal sharing of electrons whose geometry is such that dipoles are not canceled such as some halocarbons are sometimes considered non polar.

With re to the scope of the claims, it is now and always has been the position of the examiner that the claims require at the very least two "P" segments (as in claim 2) and the prior art teaches or suggests such materials.

With re to "D1" the structure shown on page 11 of applicants supplement amendment shows two blocks linked by a siloxane linker and thus contains "a block structure" as applicants argue is required by the language of the claims in the last complete sentence of page 9 of their supplemental response (actually two block structures and thus two branches).The two blocks correspond to P2 and P1 of claim 1. Applicants X linking groups of claim 2 recites a "hydrocarbon" which may be substituted and contain other groups and the claim language is not even closed with respect to unnamed groups which the X linker may contain or be substituted by. The linking group of D1 consists of a silyl ether(when n=1 in

the structure on page 11 of applicants supplemental amendment) bound via a C3 hydrocarbon moiety to an ester. It therefore contains a hydrocarbon moiety as well as an ether moiety. The structure shown on page 11 of applicants remarks therefore meets the limitations of the claims no matter what the disclosure of patent claim 11.

With re to D2-D7 applicants argue that their specification that vinyl aromatic and conjugated diene or isobutylene monomers are not used to produce applicants materials. Firstly the examiner sees no such disclosure and secondly limitations from the specification are not read into the claims. With re to D5, page 16 of the reference shows use of an amide and amino containing linker. Instant claim 4 requires no more than one of i-x.

Applicants may contact the examiner to set up a time for an interview if they wish.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey C. Mullis whose telephone number is 571 272 1075. The examiner can normally be reached on Mon-Friday from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seidleck James, can be reached on M-F. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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10-27-06

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